What is Claimed is:

1. Apparatus for at least partly counteracting a deficiency of a communication link between first and second circuits comprising:

first circuitry for sweeping the communication link with a test signal having time-varying frequency;

second circuitry for monitoring a deficiency of the communication link in transmitting the test signal, the second circuitry including dividing frequency of the test signal before and after application to the communication link and comparing phases of signals resulting from such frequency division; and

third circuitry for controlling a circuit component of the communication link based at least in part on the comparing of phases.

2. The apparatus defined in claim 1 wherein the first circuitry comprises:

circuitry for maintaining power of the test signal substantially constant for all of its frequencies.

3. The apparatus defined in claim 1 wherein the second circuitry comprises:

circuitry for determining attenuation of the test signal after passage of the test signal through the communication link.

4. The apparatus defined in claim 1 wherein the third circuitry comprises:

circuitry for implementing a pre-emphasis characteristic given to signals applied to the communication link.

5. The apparatus defined in claim 4 wherein the pre-emphasis characteristic comprises a selectable, multi-tap pre-emphasis characteristic.

6. The apparatus defined in claim 1 wherein the third circuitry comprises:

circuitry for implementing an equalization characteristic given to signals received from the communication link.

7. The apparatus defined in claim 3 wherein the third circuitry additionally controls a circuit component of the communication link based at least in part on attenuation determined by the circuitry for determining attenuation.

8. The apparatus defined in claim 1 wherein the second circuitry comprises:

a second communication link between the first and second circuits for communicating a signal resulting from the frequency division between the first and second circuits.

9. The apparatus defined in claim 1 wherein the second circuitry de-embeds a value of the deficiency detected at a relatively low frquency from values of the deficiency detected at ferequencies higher than the relatively low frequency.

10. The appartus defined in claim 9 wherein the deficiency includes at least one of attenuation and

phase shift of the test signal after passage through the communiction link.

11. A programmable logic device including a portion of the apparatus defined in claim 1.

12. A digital processing system comprising:

processing circuitry;

a memory coupled to the processing circuitry; and

a programmable logic device as defined in claim 11 coupled to the processing circuitry and the memory.

13. A printed circuit board on which is mounted a programmable logic device as defined in claim 11.

14. The printed circuit board defined in claim 13 further comprising:

a memory mounted on the printed circuit board and coupled to the programmable logic device.

15. The printed circuit board defined in claim 13 further comprising:

processing circuitry mounted on the printed circuit board and coupled to the programmable logic device.

16. A method of at least partly counteracting a deficiency of a communication link comprising:

sweeping the communication link with a test signal having time-varying frequency;

monitoring a deficiency of the communication link in transmitting the test signal, the monitoring including dividing frequency of the test signal before and after passage through the communication link and comparing phases of signals resulting from that frequency division; and

controlling a circuit component of the communication link based at least in part on the comparing of phases.

17. The method defined in claim 16 further comprising:

maintaining amplitude of the test signal substantially constant for all of its frequencies.

18. The method defined in claim 16 wherein the monitoring further includes:

determining attenuation of the test signal after the test signal has passed through the communication link.

19. The method defined in claim 18 further comprising:

using results of the comparing of phases and the determining attenuation to obtain attenuation and phase shift characteristics of the communication link.

20. The method defined in claim 16 wherein the controlling comprises:

implementing a pre-emphasis characteristic given to signals applied to the communication link.

21. The method defined in claim 16 wherein the controlling comprises:

implementing an equalization characteristic given to signals received from the communication link.

22. The method defined in claim 18 wherein the controlling is additionally based at least in part on attenuation determined in the determining.

23. The method defined in claim 16 wherein the monitoring further includes de-embedding a value of the deficiency detected at a relatively low frequency from values of the deficiency detected at frequencies higher than the relatively low frequency.

24. The method defined in claim 23 wherein the deficiency includes at least one of attenuation and phase shift of the test signal after passage through the communication link.

25. Apparatus for detecting and at least partly counteracting deficiencies in a communication link between first and second circuits comprising:

first circuitry for applying to the communication link at the first circuit a test signal having frequency that varies over time within a predetermined frequency range;

second circuitry for detecting attenuation of the test signal as received by the second circuit and as a function of frequency;

third circuitry for dividing the frequency of the test signal as applied to the communication link;

fourth circuitry for dividing the frequency of the test signal as received by the second circuit;

fifth circuitry for comparing phases of signals having frequency divided by the third and fourth circuitries to detect phase shift of the test signal as received by the second circuit and as a function of frequency; and

sixth circuitry for adjusting circuitry associated with the communication link to counteract the attenuation and/or phase shift.

26. The apparatus defined in claim 25 wherein the sixth circuitry comprises:

microprocessor circuitry.

27. The apparatus defined in claim 25 wherein the sixth circuitry comprises:

programmable logic device circuitry.

28. The apparatus defined in claim 27 wherein at least part of operation of the sixth circuitry is performed by soft IP of the programmable logic device circuitry.

29. The apparatus defined in claim 27 wherein at least part of operation of the sixth circuitry is performed by hard IP of the programmable logic device circuitry.

30. The apparatus defined in claim 25 wherein at least part of operation of the sixth circuitry comprises use of a look-up table.

31. The apparatus defined in claim 25 wherein at least part of operation of the sixth circuitry comprises use of an algorithm.

32. The apparatus defined in claim 25 wherein the first circuit includes the first, third, and fifth circuitries, wherein the second circuit includes the second and fourth circuitries, and wherein the apparatus further comprises:

a second communication link between the first and second circuits for conveying an output of the fourth circuitry to the fifth circuitry.

33. The apparatus defined in claim 25 wherein the sixth circuitry adjusts pre-emphasis given to signals applied to the communication link.

34. The apparatus defined in claim 33 wherein the sixth circuitry adjusts amount of the pre-emphasis.

35. The apparatus defined in claim 33 wherein the sixth circuitry adjusts duration of the pre-emphasis.

36. The apparatus defined in claim 33 wherein the sixth circuitry adjusts shape of the pre-emphasis.

37. The apparatus defined in claim 33 wherein the sixth circuitry adjusts number of taps in multi-tap pre-emphasis circuitry.

38. The apparatus defined in claim 25 wherein the sixth circuitry adjusts equalization given to signals received from the communication link.

39. The apparatus defined in claim 38 wherein the sixth circuitry adjusts amount of the equalization.

40. The apparatus defined in claim 38 wherein the sixth circuitry adjusts duration of the equalization.

41. The apparatus defined in claim 38 wherein the sixth circuitry adjusts shape of the equalization.

42. The apparatus defined in claim 38 wherein the sixth circuitry adjusts number of taps in multi-tap equalization circuitry.